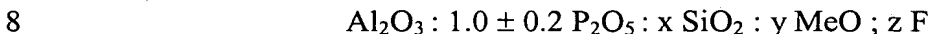


1 What is claimed is:

2

- 3 1. A process for converting hydrocarbons comprising contacting a
4 hydrocarbonaceous feed at hydrocarbon converting conditions with a catalyst
5 comprising a molecular sieve whose chemical composition, expressed in terms
6 of mole ratios of oxides after calcination, is:

7



9

10 where x has a value of 0 to 0.2, y has a value of 0 to 0.2, z has a value of 0 to
11 0.10 and Me represents at least one element, other than aluminum, phosphorus
12 or silicon, which is capable of forming an oxide in coordination with (AlO₂) and
13 (PO₂) oxide structural units in the molecular sieve, the molecular sieve having,
14 after calcination and in a hydrated state, the X-ray diffraction lines of Table II.

15

- 16 2. The process of Claim 1 wherein the molecular sieve is predominantly in the
17 hydrogen form.

18

- 19 3. The process of Claim 1 wherein the molecular sieve is substantially free of
20 acidity.

21

- 22 4. The process of Claim 1 wherein the process is a hydrocracking process
23 comprising contacting the catalyst with a hydrocarbon feedstock under
24 hydrocracking conditions.

25

- 26 5. The process of Claim 4 wherein the molecular sieve is predominantly in the
27 hydrogen form.

28

- 29 6. The process of Claim 1 wherein the process is a dewaxing process comprising
30 contacting the catalyst with a hydrocarbon feedstock under dewaxing
31 conditions.

32

- 33 7. The process of Claim 6 wherein the molecular sieve is predominantly in the

- 1 hydrogen form.
- 2
- 3 8. The process of Claim 1 wherein the process is a process for improving the
- 4 viscosity index of a dewaxed product of waxy hydrocarbon feeds comprising
- 5 contacting the catalyst with a waxy hydrocarbon feed under isomerization
- 6 dewaxing conditions.
- 7
- 8 9. The process of Claim 8 wherein the molecular sieve is predominantly in the
- 9 hydrogen form.
- 10
- 11 10. The process of Claim 1 wherein the process is a process for producing a C₂₀₊
- 12 lube oil from a C₂₀₊ olefin feed comprising isomerizing said olefin feed under
- 13 isomerization conditions over the catalyst.
- 14
- 15 11. The process of Claim 10 wherein the molecular sieve is predominantly in the
- 16 hydrogen form.
- 17
- 18 12. The process of Claim 10 wherein the catalyst further comprises at least one
- 19 Group VIII metal.
- 20
- 21 13. The process of Claim 1 wherein the process is a process for catalytically
- 22 dewaxing a hydrocarbon oil feedstock boiling above about 350°F (177°C) and
- 23 containing straight chain and slightly branched chain hydrocarbons comprising
- 24 contacting said hydrocarbon oil feedstock in the presence of added hydrogen gas
- 25 at a hydrogen pressure of about 15-3000 psi (0.103-20.7 MPa) under dewaxing
- 26 conditions with the catalyst.
- 27
- 28 14. The process of Claim 13 wherein the molecular sieve is predominantly in the
- 29 hydrogen form.
- 30
- 31 15. The process of Claim 13 wherein the catalyst further comprises at least one
- 32 Group VIII metal.
- 33
- 34 16. The process of Claim 13 wherein said catalyst comprises a layered catalyst

- 1 comprising a first layer comprising the molecular sieve and at least one Group
2 VIII metal, and a second layer comprising an aluminosilicate molecular sieve
3 which is more shape selective than the molecular sieve of said first layer.
4
- 5 17. The process of Claim 1 wherein the process is a process for preparing a
6 lubricating oil which comprises:
7
8 hydrocracking in a hydrocracking zone a hydrocarbonaceous feedstock to obtain
9 an effluent comprising a hydrocracked oil; and
10
11 catalytically dewaxing said effluent comprising hydrocracked oil at a
12 temperature of at least about 400°F (204°C) and at a pressure of from about
13 15 psig to about 3000 psig (0.103 to 20.7 MPa gauge) in the presence of added
14 hydrogen gas with the catalyst.
15
- 16 18. The process of Claim 17 wherein the molecular sieve is predominantly in the
17 hydrogen form.
18
- 19 19. The process of Claim 17 wherein the catalyst further comprises at least one
20 Group VIII metal.
21
- 22 20. The process of Claim 1 wherein the process is a process for isomerization
23 dewaxing a raffinate comprising contacting said raffinate in the presence of
24 added hydrogen under isomerization dewaxing conditions with the catalyst.
25
- 26 21. The process of Claim 20 wherein the molecular sieve is predominantly in the
27 hydrogen form.
28
- 29 22. The process of Claim 20 wherein the catalyst further comprises at least one
30 Group VIII metal.
31
- 32 23. The process of Claim 20 wherein the raffinate is bright stock.
33

- 1 24. The process of Claim 1 wherein the process is a process for increasing the
2 octane of a hydrocarbon feedstock to produce a product having an increased
3 aromatics content comprising contacting a hydrocarbonaceous feedstock which
4 comprises normal and slightly branched hydrocarbons having a boiling range
5 above about 40°C and less than about 200°C under aromatic conversion
6 conditions with the catalyst.
7
- 8 25. The process of Claim 24 wherein the molecular sieve is substantially free of
9 acid.
10
- 11 26. The process of Claim 24 wherein the molecular sieve contains a Group VIII
12 metal component.
13
- 14 27. The process of Claim 1 wherein the process is a catalytic cracking process
15 comprising contacting a hydrocarbon feedstock in a reaction zone under
16 catalytic cracking conditions in the absence of added hydrogen with the catalyst.
17
- 18 28. The process of Claim 27 wherein the molecular sieve is predominantly in the
19 hydrogen form.
20
- 21 29. The process of Claim 27 wherein the catalyst additionally comprises a large
22 pore crystalline cracking component.
23
- 24 30. The process of Claim 1 wherein the process is an isomerization process for
25 isomerizing C₄ to C₇ hydrocarbons, comprising contacting a feed having normal
26 and slightly branched C₄ to C₇ hydrocarbons under isomerizing conditions with
27 the catalyst.
28
- 29 31. The process of Claim 30 wherein the molecular sieve is predominantly in the
30 hydrogen form.
31
- 32 32. The process of Claim 30 wherein the molecular sieve has been impregnated with
33 at least one Group VIII metal.

- 1
- 2 33. The process of Claim 30 wherein the catalyst has been calcined in a steam/air
3 mixture at an elevated temperature after impregnation of the Group VIII metal.
4
- 5 34. The process of Claim 32 wherein the Group VIII metal is platinum.
6
- 7 35. The process of Claim 1 wherein the process is a process for alkylating an
8 aromatic hydrocarbon which comprises contacting under alkylation conditions
9 at least a molar excess of an aromatic hydrocarbon with a C₂ to C₂₀ olefin under
10 at least partial liquid phase conditions and in the presence of the catalyst.
11
- 12 36. The process of Claim 35 wherein the molecular sieve is predominantly in the
13 hydrogen form.
14
- 15 37. The process of Claim 35 wherein the olefin is a C₂ to C₄ olefin.
16
- 17 38. The process of Claim 37 wherein the aromatic hydrocarbon and olefin are
18 present in a molar ratio of about 4:1 to about 20:1, respectively.
19
- 20 39. The process of Claim 37 wherein the aromatic hydrocarbon is selected from the
21 group consisting of benzene, toluene, ethylbenzene, xylene, naphthalene,
22 naphthalene derivatives, dimethylnaphthalene or mixtures thereof.
23
- 24 40. The process of Claim 1 wherein the process is a process for alkylating an
25 aromatic hydrocarbon which comprises contacting under alkylation conditions
26 an aromatic hydrocarbon with a C₂₀₊ olefin under at least partial liquid phase
27 conditions and in the presence of the catalyst.
28
- 29 41. The process of Claim 40 wherein the molecular sieve is predominantly in the
30 hydrogen form.
31
- 32 42. The process of Claim 41 wherein the aromatic hydrocarbon and olefin are
33 present in a molar ratio of about 1:15 to about 25:1, respectively.
34

- 1 43. The process of Claim 41 wherein the aromatic hydrocarbon is selected from the
2 group consisting of benzene, toluene, ethylbenzene, xylene, naphthalene,
3 naphthalene derivatives, dimethylnaphthalene or mixtures thereof.
4
- 5 44. The process of Claim 1 wherein the process is a process for transalkylating an
6 aromatic hydrocarbon which comprises contacting under transalkylating
7 conditions an aromatic hydrocarbon with a polyalkyl aromatic hydrocarbon
8 under at least partial liquid phase conditions and in the presence of the catalyst.
9
- 10 45. The process of Claim 44 wherein the molecular sieve is predominantly in the
11 hydrogen form.
12
- 13 46. The process of Claim 44 wherein the aromatic hydrocarbon and the polyalkyl
14 aromatic hydrocarbon are present in a molar ratio of from about 1:1 to about
15 25:1, respectively.
16
- 17 47. The process of Claim 44 wherein the aromatic hydrocarbon is selected from the
18 group consisting of benzene, toluene, ethylbenzene, xylene, or mixtures thereof.
19
- 20 48. The process of Claim 40 wherein the polyalkyl aromatic hydrocarbon is a
21 dialkylbenzene.
22
- 23 49. The process of Claim 1 wherein the process is a process to convert paraffins to
24 aromatics which comprises contacting paraffins under conditions which cause
25 paraffins to convert to aromatics with a catalyst comprising the molecular sieve
26 and gallium, zinc, or a compound of gallium or zinc.
27
- 28 50. The process of Claim 1 wherein the process is a process for isomerizing olefins
29 comprising contacting said olefin under conditions which cause isomerization of
30 the olefin with the catalyst.
31
- 32 51. The process of Claim 1 wherein the process is a process for isomerizing an
33 isomerization feed comprising an aromatic C₈ stream of xylene isomers or
34 mixtures of xylene isomers and ethylbenzene, wherein a more nearly

1 equilibrium ratio of ortho-, meta and para-xylenes is obtained, said process
2 comprising contacting said feed under isomerization conditions with the
3 catalyst.

4

5 52. The process of Claim 1 wherein the process is a process for oligomerizing
6 olefins comprising contacting an olefin feed under oligomerization conditions
7 with the catalyst.

8

9 53. A process for converting oxygenated hydrocarbons comprising contacting said
10 oxygenated hydrocarbon under conditions to produce liquid products with a
11 catalyst comprising A molecular sieve whose chemical composition, expressed
12 in terms of mole ratios of oxides after calcination, is:

13

14
$$\text{Al}_2\text{O}_3 : 1.0 \pm 0.2 \text{ P}_2\text{O}_5 : x \text{ SiO}_2 : y \text{ MeO} ; z \text{ F}$$

15

16 where x has a value of 0 to 0.2, y has a value of 0 to 0.2, z has a value of 0.02 to
17 0.10 and Me represents at least one element, other than aluminum, phosphorus
18 or silicon, which is capable of forming an oxide in coordination with (AlO_2) and
19 (PO_2) oxide structural units in the molecular sieve, the molecular sieve having,
20 after calcination and in a hydrated state, the X-ray diffraction lines of Table II.

21

22 54. The process of Claim 53 wherein the oxygenated hydrocarbon is a lower
23 alcohol.

24

25 55. The process of Claim 54 wherein the lower alcohol is methanol.

26

27 56. The process of Claim 1 wherein the process is a process for the production of
28 higher molecular weight hydrocarbons from lower molecular weight
29 hydrocarbons comprising the steps of:

30

31 (a) introducing into a reaction zone a lower molecular weight hydrocarbon-
32 containing gas and contacting said gas in said zone under C_{2+} hydrocarbon
33 synthesis conditions with the catalyst and a metal or metal compound capable of

1 converting the lower molecular weight hydrocarbon to a higher molecular
2 weight hydrocarbon; and

3

4 (b) withdrawing from said reaction zone a higher molecular weight
5 hydrocarbon-containing stream.

6

7 57. The process of Claim 56 wherein the metal or metal compound comprises a
8 lanthanide or actinide metal or metal compound.

9

10 58. The process of Claim 56 wherein the lower molecular weight hydrocarbon is
11 methane.